

Lake Linganore Association Town Hall Meeting August 29, 2012

Lake Linganore Water Quality

Invited Guests:

***Representatives of the Frederick County
Division of Utilities and Solid Waste
Management & the Frederick County
Health Department***



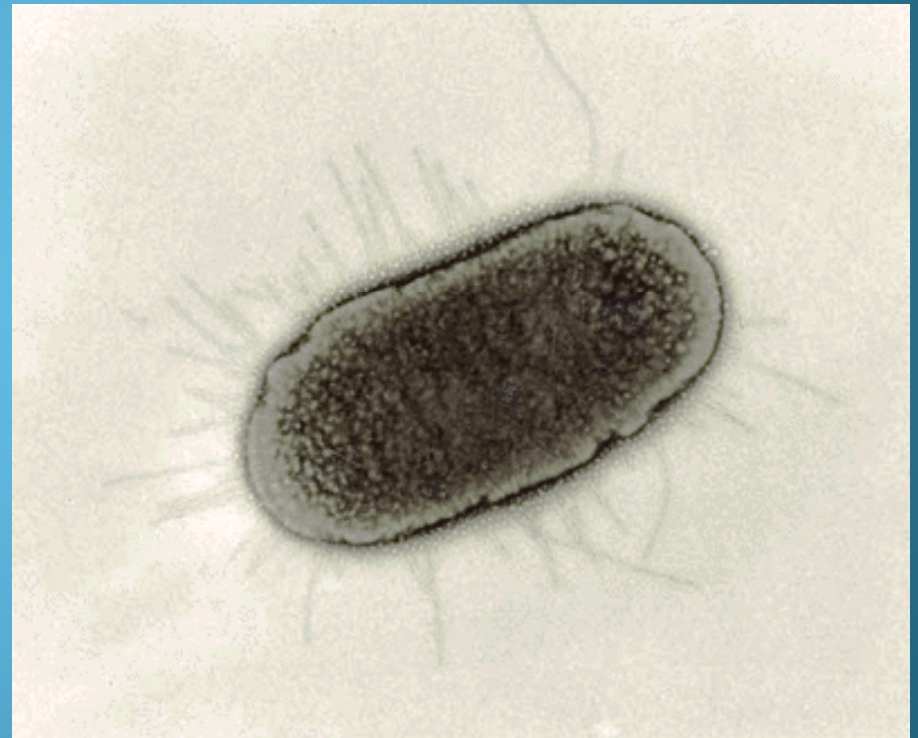
AGENDA

- ☐ Escherichia coli (*E. Coli*)
- ☐ History (Recreational/Bathing Beach)
- ☐ Requirements for Permitted Bathing Beaches
- ☐ *E. coli* in recreational waters
- ☐ Past and Recent Water Quality Sampling (DUSWM)
- ☐ Q & A >>> Dialogue & Discussion



E. coli (*Escherichia coli*)

- ❑ **Source:** intestines of warm-blooded animals
- ❑ **Health Effects:** most strains are harmless - others can cause serious illnesses/death (e.g. 0157)
- ❑ **WQ Significance:** an indicator of fecal contamination – possible presence of pathogens



E. coli (*Escherichia coli*)

E. coli is commonplace in the environment:

- Lakes, streams, creeks, rivers, springs, ponds, etc.
- Swimming pools, spas and hot tubs, jacuzzis, etc.
- Contaminated drinking water supplies/food



Historical Background

- ❑ In 1992 the Maryland Department of Environment (MDE) and the Frederick County Health Department advised LLA that the Lake beaches needed to be permitted and regulated as a public bathing beach.
- ❑ LLA through their legal counsel argued that the beaches are private and therefore not required to meet State rule for public beaches
- ❑ MDE concurred that LLA beaches as private beaches hence the requirements under State regulation do not apply.



Permitted Bathing Beaches

Code of Maryland Regulations (COMAR)

26.08.09



COMAR 26.08.09

.02 Approval of Plans and Application for Permit

- (a) A diagram of the beach area including all buildings;
- (b) Plans for the bathhouses;
- (c) Plans of the water supply and sewage system;
- (d) Location of trash & waste containers;
- (e) Plans of any food facility; and
- (f) Plans of marina facilities, if any.



COMAR 26.08.09

.03 Annual Permit for Operation of Permitted Beaches.

.04 Drinking Water

.05 Sanitary Facilities at Permitted Beaches

.06 Sanitary Quality of Permitted Beaches

.07 Tiered Monitoring— Memorial Day Through Labor Day

.08 Public Notification { beach closures}



COMAR 26.08.09.07

Sampling Frequency

- (a) Tier 1—Frequently used beaches or beaches where risk may potentially be elevated by known pollution sources or impacts from rainfall shall be monitored ***weekly***.
- (b) Tier 2—Less frequently used beaches or beaches where potential pollution impacts are minimal shall be monitored ***biweekly***.
- (c) Tier 3—All other beaches shall be monitored ***monthly***.
- (d) Water quality shall be assessed using the criteria values {specified in COMAR}.

Assessment for Public Notification {making public health decisions based on sampling data, sanitary surveys results, prior rainfall, and other environmental conditions}.



E. coli in recreational waters

Many factors affect bacteria levels:

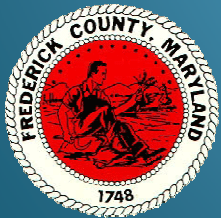
- Seasonal and land use changes, rain & runoff amount {nutrients & bacteria}
- Domestic and farm animals, wildlife feces
- Sanitary sewer overflows or from septic systems
- Density of bathers/swimmers at bathing beaches or recreational waters (e.g. human diarrhea)



Lake Linganore

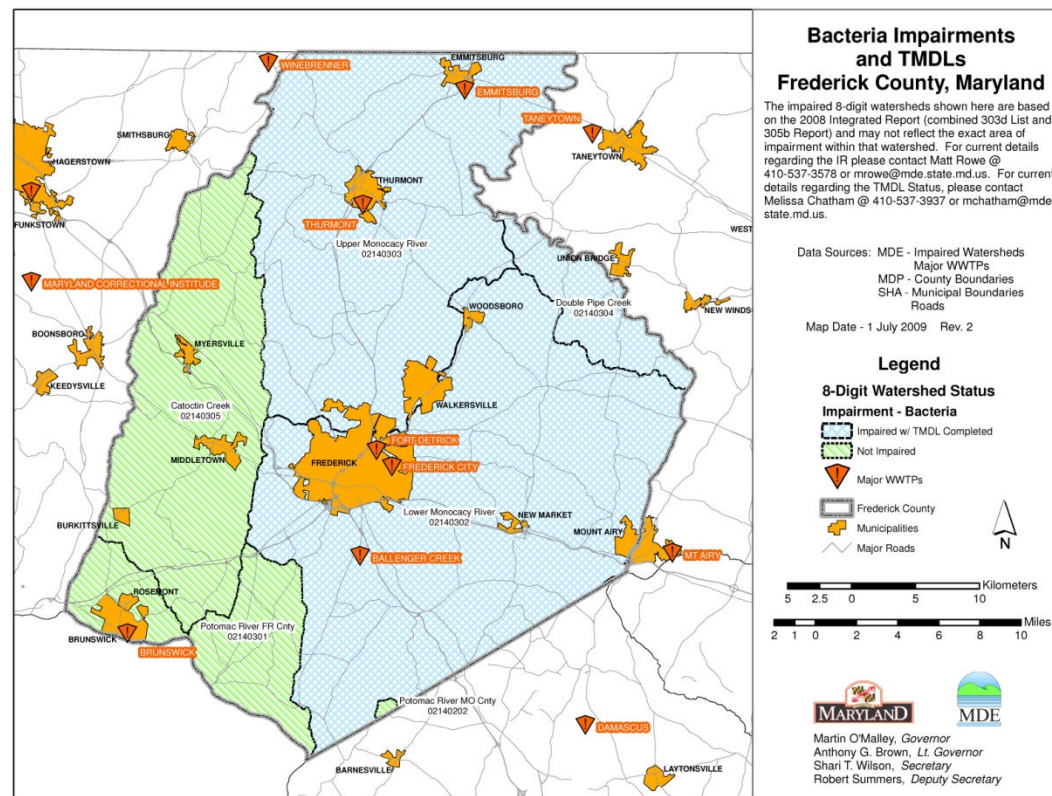


Source Water Monitoring Program for Lake Linganore



Frederick County
Division of Utilities and Solid Waste Management
August 29, 2012

County-wide Bacterial Impairments



Monitoring Program Background

- ❑ Linganore Creek is utilized as a water supply for the City of Frederick. (The County's water plant is currently inactive and may be used in an emergency backup capacity)
- ❑ Starting in 1995, water quality testing was used to monitor and assist with treatment plant operational decisions and to identify potential issues with sanitary sewer lines surrounding the lake.
- ❑ Beaches chosen as sample locations solely because of their ease of access to the lake. (Note: DUSWM does not have regulatory authority to monitor bathing beaches)

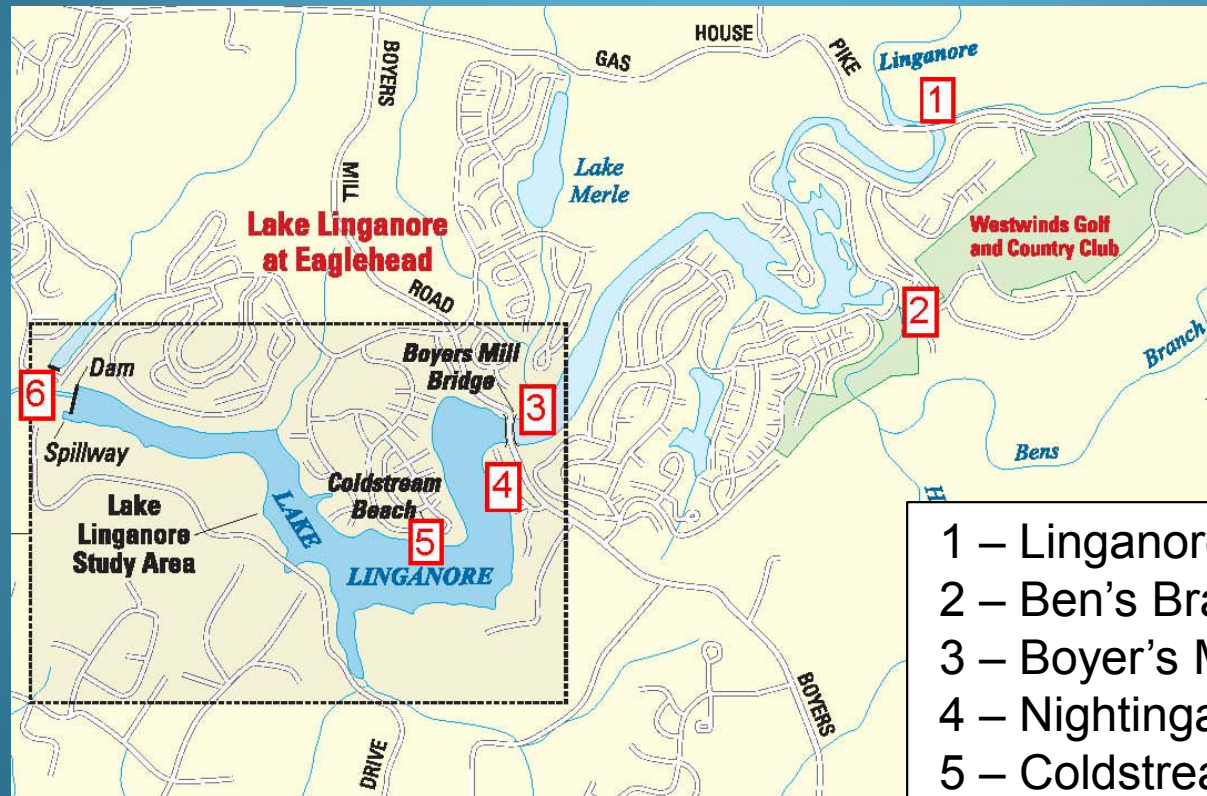


Monitoring Program

- ❑ No set collection schedule, however typically done on a monthly basis depending on staff availability and weather.
- ❑ Samples analyzed for:
 - Ammonia Nitrogen
 - Total Kjeldahl Nitrogen (TKN)
 - Nitrate Nitrogen
 - Total Phosphorus
 - *E. coli*
- ❑ Program in place since 1995.



Sample Locations



- 1 – Linganore Creek
- 2 – Ben's Branch
- 3 – Boyer's Mill Bridge
- 4 – Nightingale Beach
- 5 – Coldstream Beach
- 6 – Stilling Basin Below Dam



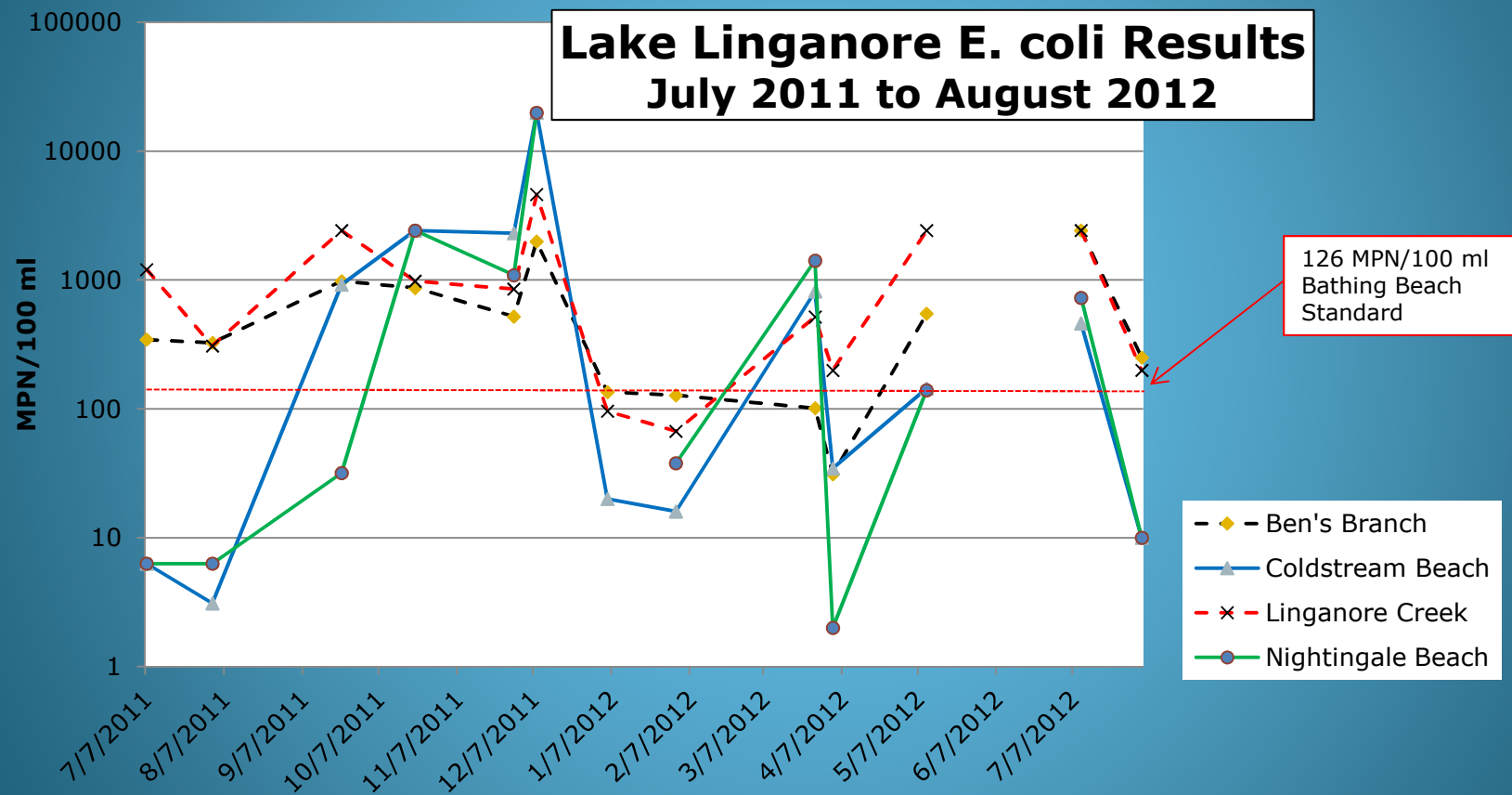
Map Source - US Geological Survey

E. Coli Test Procedure

- ❑ Colilert® testing procedure simultaneously detects Total Coliform and *E. coli*.
- ❑ Final results expressed as Most Probable Number per 100 ml (MPN/100 ml)
- ❑ Test results in 24 hours.



Recent *E. coli* Results



June 2012 test results lost due to equipment failure

Summary

- ❑ Data has shown highest *E. coli* levels are typically found in Ben's Branch and Linganore Creek.
- ❑ Highest levels often associated with recent rainfall/snow melt events.



Questions and Answers

- ☐ Health Department
- ☐ DUSWM

